

Supplemental Material

CBE—Life Sciences Education

Rowland *et al.*

Table S1: Short-Answer Post-Survey Items used in Coding. Items appear as shown in the survey.

Survey Item	Full Description
Roses	What are the positives of your LEAPS or ALLURE experience? Why?
Thorns	Was there something that could be changed or something you didn't like about your LEAPS or ALLURE experience? Why?
Buds	Has the LEAPS or ALLURE experience had any effect on you personally? For example, has it changed your interest in pursuing science in the future? Has it changed your outlook on your future career? In this section you can write about emergent possibilities or ideas.

Table S2: Coding Framework Adapted from Hunter et al. (2007). The parent and sub/child-categories appear as in the original source, with the hierarchy determined by the two coders (J.P.L.T and Y.H). Note: non-coloured child categories/nodes are those which contain the sub-coding for positive/negative/neutral statements. Within each sub-node, the coders organised statements from ALURE and LEAPS students as positive, negative, or neutral.

Parent Category, Sub-categories, and Nodes
Thinking and working like a scientist
<i>Application of knowledge and skills</i>
Understanding how to approach research problems and design
Understanding science research through hands on experience
Understanding the nature of scientific knowledge
<i>Increased knowledge and understanding of science and research work</i>
Connections between and within sciences
Increased relevance of coursework
Theory and concepts
Transfer between research and courses
Becoming a scientist
<i>Demonstrated gains in behaviours and attitudes necessary to becoming a researcher</i>
Creative and independent approach in decision making
Intellectual engagement, initiative
Student takes 'ownership' of project and shows responsibility
Greater understanding of the nature of research work and professional practice
Identification with and bonding with science
Personal-professional
Establishing collegial, working relationships with faculty advisors
Establishing collegial, working relationships with peers ¹
Increased confidence in ability to do research, contribute to science, present or defend work, in 'feeling like a scientist'
Clarification, confirmation, and refinement of career and education paths
Clarification of which field to study
Greater knowledge of career and education options
Increased interest and enthusiasm for field
Introduced to new field of study
Validation of disciplinary interests and clarification of graduate school intentions
Enhanced career and graduate school preparation
Good graduate school and job preparation
New professional experiences
Opportunities for collaboration and networking with faculty, peers, other scientists
Real-world work experience
Resume enhanced
Skills
Communication skills
Computer
Information retrieval
Laboratory and field techniques
Presentation and oral argument
Reading comprehension
Work organisation
Working collaboratively
Writing and editing
Generalised and other gains
Access to good laboratory equipment
Good summer job
Students learn a lot
Working independently

1. This and the previous node appear as one in the original source; it was split into two for the coding framework.



Figure S1: ALURE Word Tree: “Real”. The figure shows 41 references or instances of the word ‘real’ in all positively coded ALURE reflections (n = 94). The context words on either side of the search word (in red) were lengthened to 10 words on either side of the word. The references are displayed in alphabetical order on each side, and therefore cannot be read from left-to-right to form a sentence or phrase.

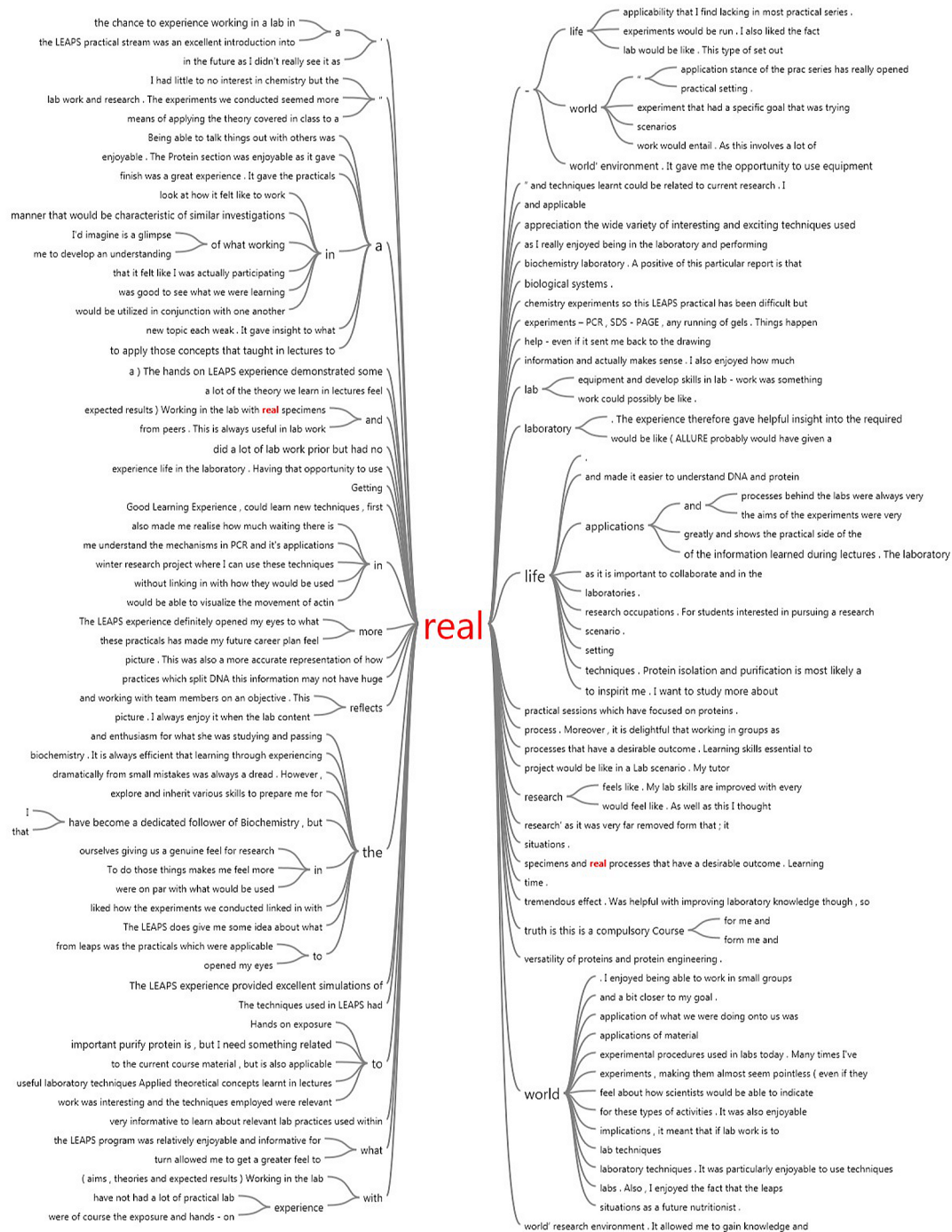


Figure S2: LEAPS Word Tree: “Real”. The figure shows 71 references or instances of the word ‘real’ in all positively coded LEAPS reflections (n = 510). The context words on either side of the search word (in red) were lengthened to 10 words on either side of the search word. The references are displayed in alphabetical order on each side, and therefore cannot be read from left-to-right to form a sentence or phrase.